

EXHAUST SYSTEM

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DESCRIPTION AND OPERATION

EXHAUST SYSTEM

DESCRIPTION

CAUTION: Avoid application of rust prevention compounds or undercoating materials to exhaust system floor pan exhaust heat shields. Light overspray near the edges is permitted. Application of coating will result in excessive floor pan temperatures and objectionable fumes.

The gasoline engine exhaust system consists of engine exhaust manifolds, exhaust pipes, catalytic converter(s), extension pipe (if needed), exhaust heat shields, muffler and exhaust tailpipe.

The exhaust system must be properly aligned to prevent stress, leakage and body contact. Minimum clearance between any exhaust component and the body or frame is 25.4 mm (1.0 in.). If the system contacts any body panel, it may amplify objectionable noises from the engine or body.

CATALYTIC CONVERTER

DESCRIPTION

California emissions vehicles equipped with 2.5L or 4.7L engines, incorporate mini catalytic converters into the exhaust system. These catalytic converters are made of stainless steel designed to operate at extremely high temperatures.

OPERATION

The catalytic converter captures and burns any unburned fuel mixture exiting the combustion chambers during the exhaust stroke of the engine. This process aids in reducing emissions output.

MUFFLER

DESCRIPTION

All engines use a stainless steel muffler to control exhaust noise levels and exhaust back pressure.

TAILPIPE

DESCRIPTION

The tailpipe is made of stainless steel and attaches to the muffler.

OPERATION

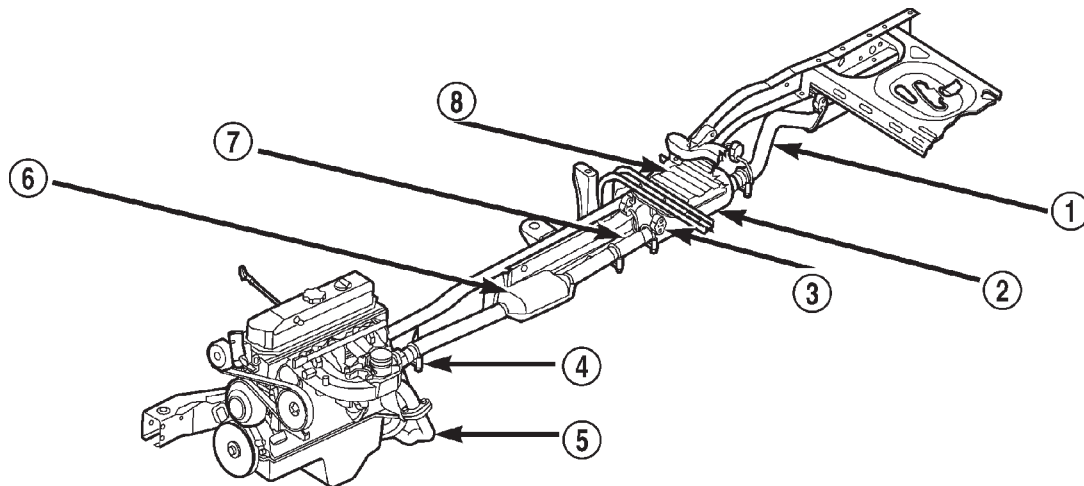
The tailpipe channels the exhaust out of the muffler and out from under the vehicle to control noise and prevent exhaust gas fumes from entering the passenger compartment.

EXHAUST HEAT SHIELDS

DESCRIPTION

There are two types of heat shields used. One is stamped steel the other is molded foil sheets. The shields attach to the vehicle around the exhaust system to prevent heat from the exhaust system from entering the passenger area and other areas where the heat can cause damage to other components.

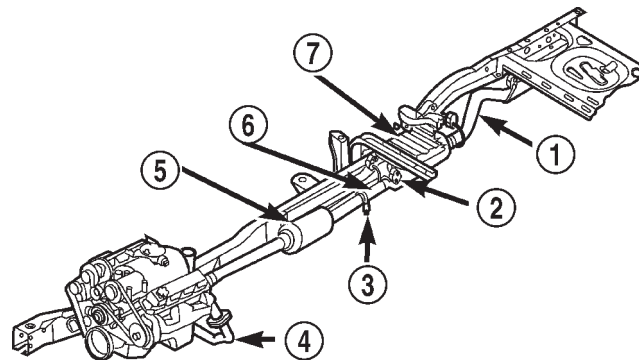
DESCRIPTION AND OPERATION (Continued)



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Fig. 1 Exhaust System 2.5L Engines—Typical

- | | |
|---|-------------------------|
| 1 - TAILPIPE | 5 - EXHAUST PIPE |
| 2 - MUFFLER | 6 - CATALYTIC CONVERTER |
| 3 - MUFFLER HANGER BRACKET AND ISOLATOR | 7 - EXTENSION PIPE |
| 4 - CLAMP | 8 - MUFFLER HEAT SHIELD |



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Fig. 2 Exhaust System 3.9L, 4.7L and 5.9L Engines—Typical

- | | |
|---|-------------------------|
| 1 - TAILPIPE | 5 - CATALYTIC CONVERTER |
| 2 - MUFFLER HANGER BRACKET AND ISOLATOR | 6 - EXTENSION PIPE |
| 3 - CLAMP | 7 - MUFFLER HEAT SHIELD |
| 4 - EXHAUST PIPE | |

DIAGNOSIS AND TESTING

EXHAUST SYSTEM DIAGNOSIS

EXHAUST SYSTEM DIAGNOSIS

CONDITION	POSSIBLE CAUSE	CORRECTION
EXCESSIVE EXHAUST NOISE	1. Leaks at pipe joints. 2. Burned or blown out muffler. 3. Burned or rusted-out exhaust pipe. 4. Exhaust pipe leaking at manifold flange. 5. Exhaust manifold cracked or broken. 6. Leak between exhaust manifold and cylinder head. 7. Restriction in muffler or tailpipe. 8. Exhaust system contacting body or chassis.	1. Tighten clamps to specified torque at leaking joints. 2. Replace muffler assembly. Check exhaust system. 3. Replace exhaust pipe. 4. Tighten connection attaching nuts. 5. Replace exhaust manifold. 6. Tighten exhaust manifold to cylinder head stud nuts or bolts. 7. Remove restriction, if possible. Replace muffler or tailpipe, as necessary. 8. Re-align exhaust system to clear surrounding components.
LEAKING EXHAUST GASES	1. Leaks at pipe joints. 2. Damaged or improperly installed gaskets (4.0L only).	1. Tighten/replace clamps at leaking joints. 2. Replace gaskets as necessary (4.0L only).

REMOVAL AND INSTALLATION

EXHAUST PIPE

CAUTION: When servicing or replacing exhaust system components, disconnect the oxygen sensor connector(s). Allowing the exhaust to hang by the oxygen sensor wires will damage the harness and/or sensor.

REMOVAL

- (1) Raise and support the vehicle.

- (2) Saturate the bolts and nuts with Mopar® Rust Penetrant. Allow 5 minutes for penetration.

- (3) Disconnect the oxygen sensor(s).

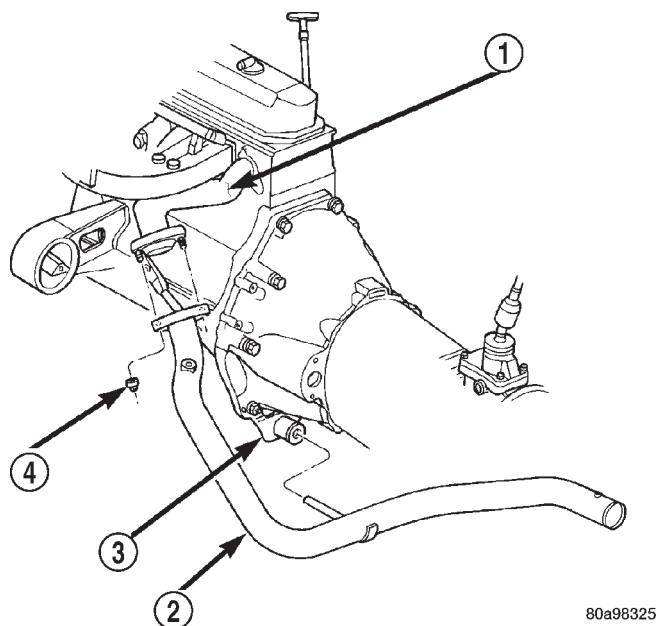
- (4) Remove the exhaust manifold-to-exhaust pipe nuts (Fig. 3) (Fig. 4) (Fig. 5) (Fig. 6).

- (5) Remove exhaust pipe to converter exhaust clamp.

- (6) Disconnect the exhaust pipe from the catalytic converter front flange.

- (7) Remove the exhaust pipe.

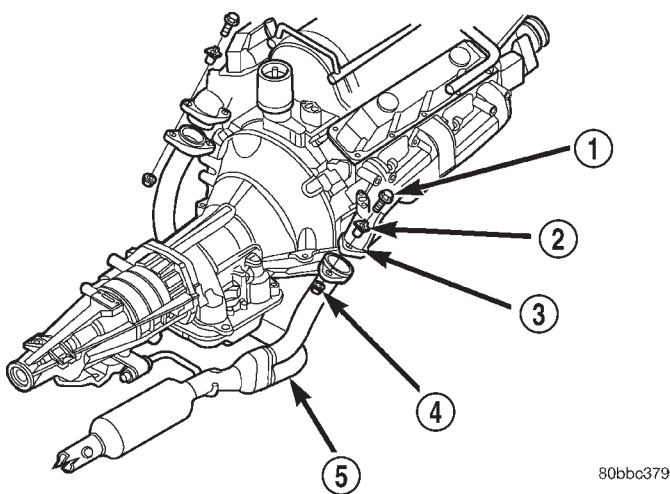
REMOVAL AND INSTALLATION (Continued)



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Fig. 3 Exhaust Pipe to Manifold Connection—(2.5L)

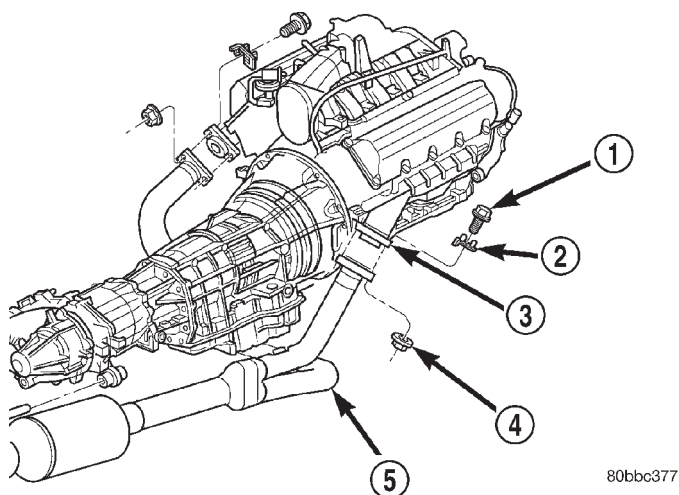
- 1 - EXHAUST MANIFOLD
- 2 - EXHAUST PIPE
- 3 - SUPPORT BRACKET
- 4 - NUT



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Fig. 4 Exhaust Pipe to Manifold Connection—(3.9L/5.9L)

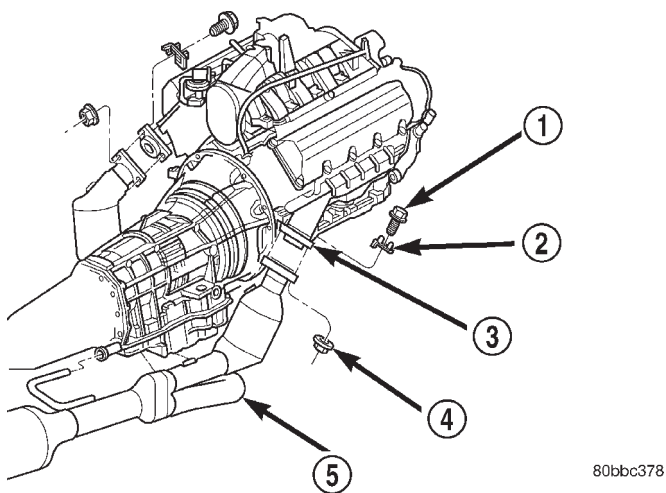
- 1 - BOLT
- 2 - RETAINER
- 3 - EXHAUST MANIFOLD
- 4 - NUT
- 5 - EXHAUST PIPE



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Fig. 5 Exhaust Pipe(s) to Manifold Connection—(4.7L Federal Models)

- 1 - BOLT
- 2 - RETAINER
- 3 - EXHAUST MANIFOLD
- 4 - NUT
- 5 - EXHAUST PIPE

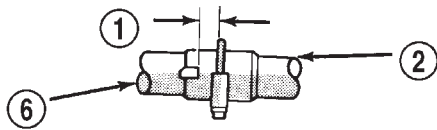


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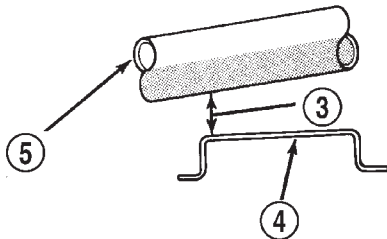
Fig. 6 Exhaust Pipe(s) to Manifold Connection—(4.7L California Models)

- 1 - BOLT
- 2 - RETAINER
- 3 - EXHAUST MANIFOLD
- 4 - NUT
- 5 - EXHAUST PIPE

REMOVAL AND INSTALLATION (Continued)



TYPICAL VIEW OF PIPE SLIP JOINT
(MUST BE FULLY ENGAGED)



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Fig. 7 Exhaust Pipe-to-Catalytic Converter Flange Alignment—Typical

- 1 - 7.874-17.526 mm (0.31-0.69 in.)
- 2 - CATALYTIC CONVERTER FLANGE
- 3 - 20 mm (0.79") MIN.
- 4 - CROSSMEMBER
- 5 - EXHAUST PIPE
- 6 - EXHAUST PIPE

INSTALLATION

(1) Connect the exhaust pipe(s) to the exhaust manifold. Tighten the nuts to 26 N·m (19 ft. lbs.) torque.

(2) Align and connect the exhaust pipe to the catalytic converter flange (Fig. 7). Install exhaust clamp and tighten clamp nuts to 41 N·m (33 ft. lbs.) torque.

(3) Connect oxygen sensor connector(s).

(4) Lower the vehicle.

(5) Start the engine and inspect for exhaust leaks and exhaust system contact with the body panels. Adjust the alignment, if needed.

CATALYTIC CONVERTER

CAUTION: When servicing or replacing exhaust system components, disconnect the oxygen sensor connector(s). Allowing the exhaust to hang by the oxygen sensor wires will damage the harness and/or sensor.

REMOVAL

NOTE: The mini catalytic converters used on the 4.7L engine is an integral part of the exhaust pipe. To replace the mini catalytic converters, the entire exhaust pipe assembly must be replaced. Refer to Exhaust Pipe in this section.

- (1) Raise and support the vehicle.

(2) Saturate the bolts and nuts with Mopar® Rust Penetrant. Allow 5 minutes for penetration.

(3) Remove the clamp holding the catalytic converter flange to the exhaust pipe(s) (Fig. 8) (Fig. 9).

(4) Remove the clamp holding the catalytic converter flange to the muffler or extension pipe.

(5) Remove the transmission mount. Refer to ENGINE.

(6) Remove the crossmember. Refer to FRAME.

(7) Remove the catalytic converter. You may have to loosen up other sections of the exhaust system.

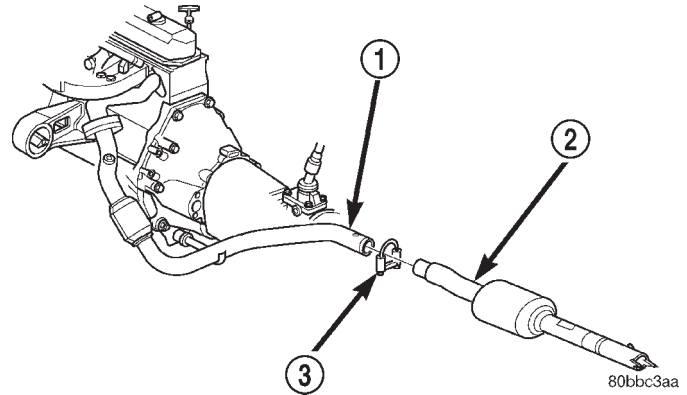


Fig. 8 Catalytic Converter—2.5L Engine

- 1 - EXHAUST PIPE
- 2 - CATALYTIC CONVERTER AND PIPE
- 3 - CLAMP

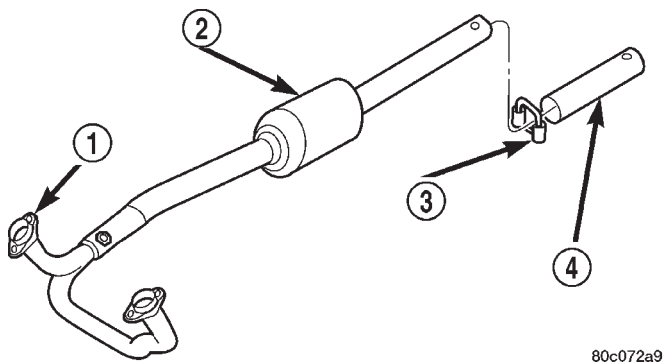


Fig. 9 Catalytic Converter—3.9L/5.9L Engine

- 1 - EXHAUST PIPE
- 2 - CATALYTIC CONVERTER
- 3 - CLAMP
- 4 - EXTENSION PIPE TO MUFFLER

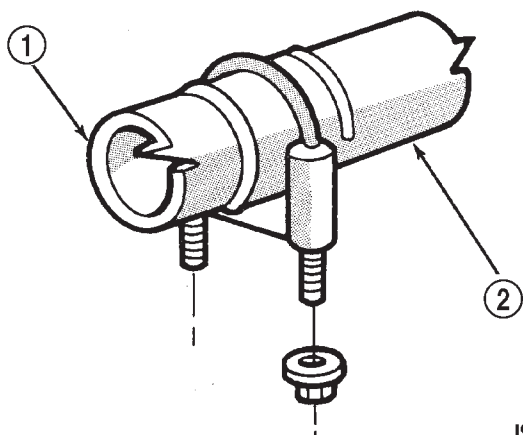
INSTALLATION

(1) Align and connect the catalytic converter flange to the exhaust pipe (Fig. 7).

(2) Install the catalytic converter flange into the muffler or extension pipe (Fig. 10).

(3) If other sections of the exhaust system were loosened in removal, refer to that section for the tightening procedures.

REMOVAL AND INSTALLATION (Continued)



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Fig. 10 Extension Pipe/Muffler to Catalytic Converter Flange

- 1 - CATALYTIC CONVERTER FLANGE
2 - EXTENSION PIPE

(4) At the catalytic converter flange connections, install the clamp and nuts. Tighten the clamp nuts to 41 N·m (30 ft. lbs.) torque.

(5) Install the crossmember.

(6) Install the transmission mount.

(7) Lower the vehicle.

(8) Start the engine and inspect for exhaust leaks and exhaust system contact with the body panels. Adjust the alignment, if needed.

EXTENSION PIPE

CAUTION: When servicing or replacing exhaust system components, disconnect the oxygen sensor connector(s). Allowing the exhaust to hang by the oxygen sensor wires will damage the harness and/or sensor.

REMOVAL

(1) Raise and support the vehicle.

(2) Saturate the clamp nuts with Mopar® Rust Penetrant. Allow 5 minutes for penetration.

(3) Remove the front and rear clamp nuts.

(4) It may be necessary to loosen other sections of the exhaust system to remove the extension pipe.

INSTALLATION

(1) Position the extension pipe in the muffler and the catalytic converter flange.

(2) If other sections of the exhaust system were loosened in removal, refer to the section for tightening procedures.

(3) Install the clamps and nuts (Fig. 10). Tighten the nuts to 47 N·m (35 ft. lbs.) torque.

(4) Lower the vehicle.

(5) Start the engine, inspect for exhaust leaks and exhaust system contact with the body panels. Adjust the alignment, if needed.

MUFFLER

CAUTION: When servicing or replacing exhaust system components, disconnect the oxygen sensor connector(s). Allowing the exhaust to hang by the oxygen sensor wires will damage the harness and/or sensor.

REMOVAL

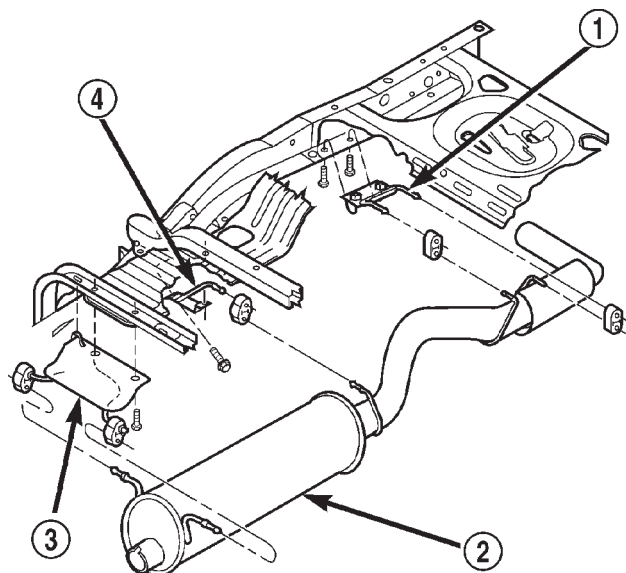
(1) Raise and support the vehicle.

(2) Saturate the clamp nuts with Mopar® Rust Penetrant. Allow 5 minutes for penetration.

(3) Remove the muffler clamp nuts from the front hanger and the rear muffler to tailpipe connection (Fig. 11).

(4) Disconnect the muffler from the tailpipe. The tailpipe should be supported when the muffler is disconnected.

(5) Remove the muffler from the extension pipe or catalytic converter flange.



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Fig. 11 Muffler and Tailpipe Assembly

- 1 - TAILPIPE HANGER
2 - MUFFLER AND TAILPIPE
3 - FRONT MUFFLER HANGER
4 - REAR MUFFLER HANGER

INSTALLATION

(1) If the 3.9L/5.9L upper front muffler support was removed (Fig. 11), install the bolts into the frame. Tighten the bolts to 23 N·m (200 in. lbs.)

REMOVAL AND INSTALLATION (Continued)

torque. The insulators slip over the ends of the upper and lower muffler hangers.

(2) Install the muffler into the extension pipe or catalytic converter flange. Install the clamp and tighten the nuts finger tight.

(3) Install the tailpipe into the rear of the muffler.

(4) Tighten the clamp nuts on the front and rear muffler hangers to 41 N·m (30 ft. lbs.) torque.

(5) Lower the vehicle.

(6) Start the engine, inspect for exhaust leaks and exhaust system contact with the body panels. Adjust the alignment, if needed.

TAILPIPE

CAUTION: When servicing or replacing exhaust system components, disconnect the oxygen sensor connector(s). Allowing the exhaust to hang by the oxygen sensor wires will damage the harness and/or sensor.

REMOVAL

(1) Raise and support the vehicle.

(2) Saturate the clamp nuts with Mopar® Rust Penetrant. Allow 5 minutes for penetration.

(3) Remove muffler to tailpipe exhaust clamp.

(4) Remove the tailpipe from the front and rear insulators (Fig. 12) (Fig. 13).

(5) Remove the tailpipe.

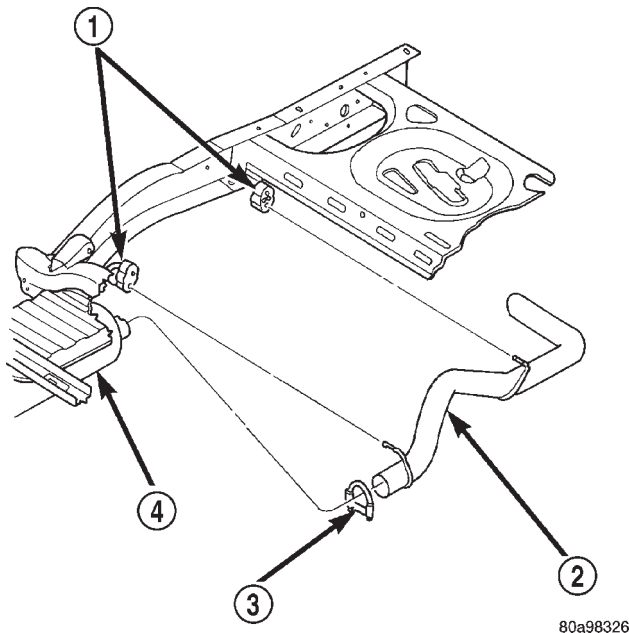
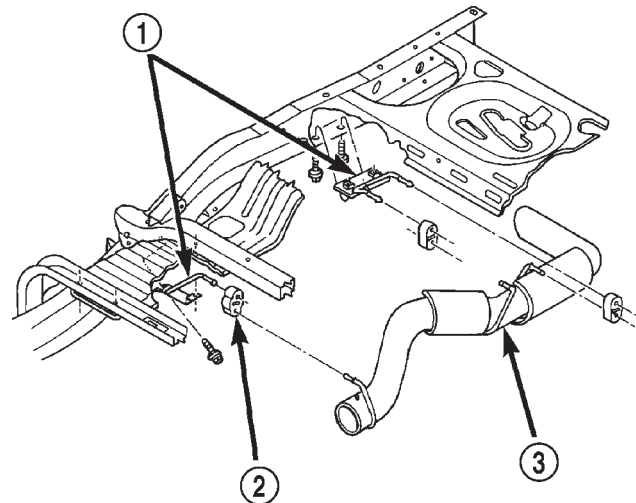


Fig. 12 Tailpipe and Hangers—2.5L/3.9L/4.7L

- 1 - INSULATORS
- 2 - TAILPIPE
- 3 - CLAMP
- 4 - MUFFLER



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Fig. 13 Tailpipe and Hangers—5.9L R/T

- 1 - HANGER BRACKETS
- 2 - ISOLATOR
- 3 - TAILPIPE

INSTALLATION

(1) Position the tailpipe into the muffler. Install the nuts onto the clamp bolt finger tight.

(2) Install the tailpipe into the insulators.

(3) Position tailpipe and tighten the muffler rear clamp nuts to 47 N·m (35 ft. lbs.) torque.

(4) Lower the vehicle.

(5) Start the engine, inspect for exhaust leaks and exhaust system contact with the body panels. Adjust the alignment, if needed.

HEAT SHIELDS

REMOVAL

(1) Raise and support the vehicle.

(2) Remove the screws and/or nuts holding the heat shields to the frame and/or floor pan.

(3) When removing muffler heat shield, the muffler front support bracket must be removed first.

(4) Slide the shields out around the exhaust system.

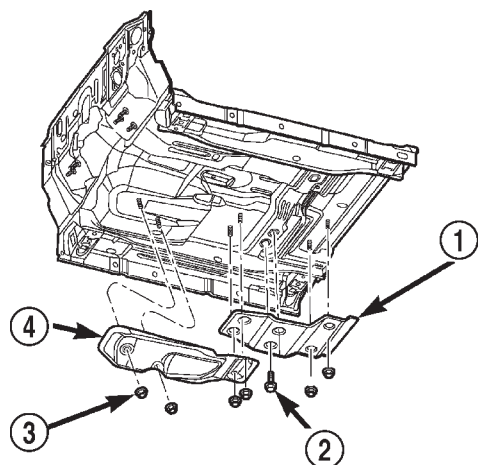
INSTALLATION

(1) Position the heat shields to the floor pan or the frame and install the screws and/or nuts.

(2) Tighten the nuts and/or screws to specification. Refer to Specifications in this section for correct torque values.

(3) Lower the vehicle.

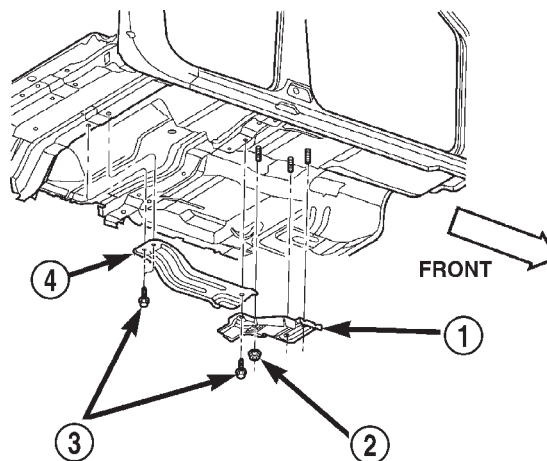
REMOVAL AND INSTALLATION (Continued)



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Fig. 14 Floor Pan Heat Shields—Standard Cab

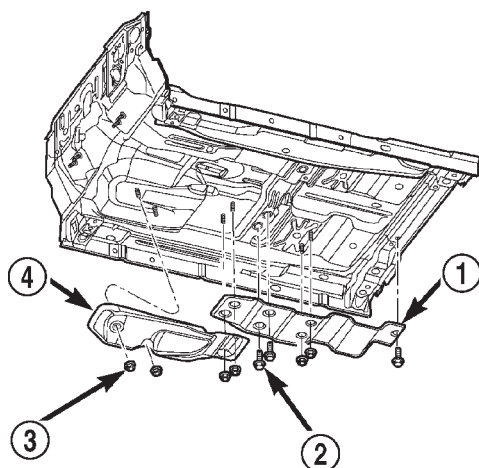
- 1 – FLOOR PAN HEAT SHIELD
- 2 – SCREW AND WASHER SELF TAPPING
- 3 – NUT AND WASHER
- 4 – FLOOR PAN HEAT SHIELD



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Fig. 16 Floor Pan Heat Shields, Front and Middle Shields—4 Door Cab

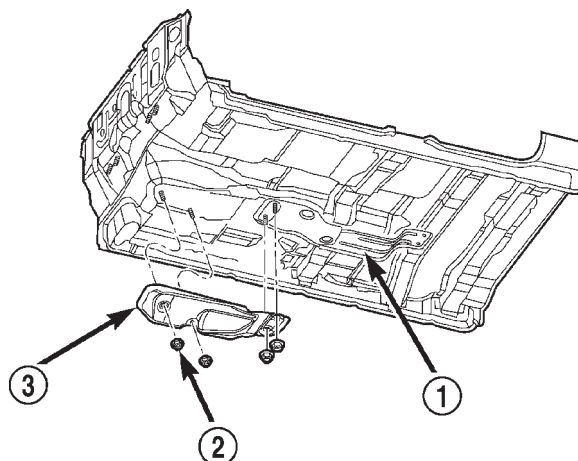
- 1 – FLOOR PAN (FRONT) HEAT SHIELD
- 2 – NUT AND WASHER
- 3 – SELF TAPPING SCREW
- 4 – FLOOR PAN (MIDDLE) HEAT SHIELD



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Fig. 15 Floor Pan Heat Shields—Extended Cab

- 1 – FLOOR PAN AND CATALYTIC CONVERTER HEAT SHIELD
- 2 – SCREW AND WASHER SELF TAPPING
- 3 – NUT AND WASHER
- 4 – FLOOR PAN HEAT SHIELD



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Fig. 17 Floor Pan Heat Shields Front Floor Pan Shield—4 Door Cab

- 1 – FLOOR PAN (MIDDLE) HEAT SHIELD
- 2 – NUT AND WASHER
- 3 – FLOOR PAN (FRONT) HEAT SHIELD

REMOVAL AND INSTALLATION (Continued)

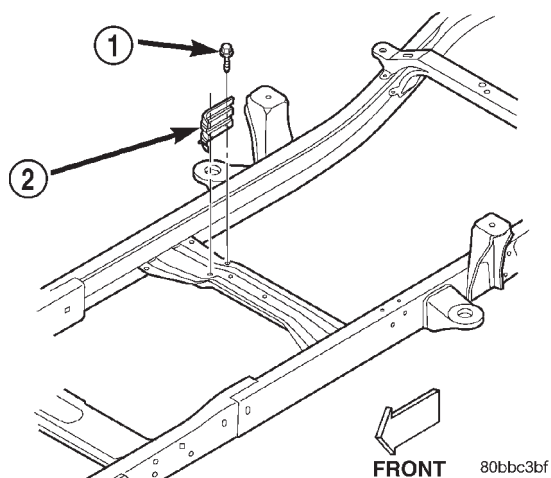


Fig. 18 Center Bearing Heat Shield—Standard Cab and Extended Cab

- 1 – SCREW AND WASHER SELF TAPPING
2 – CENTER BEARING HEAT SHIELD

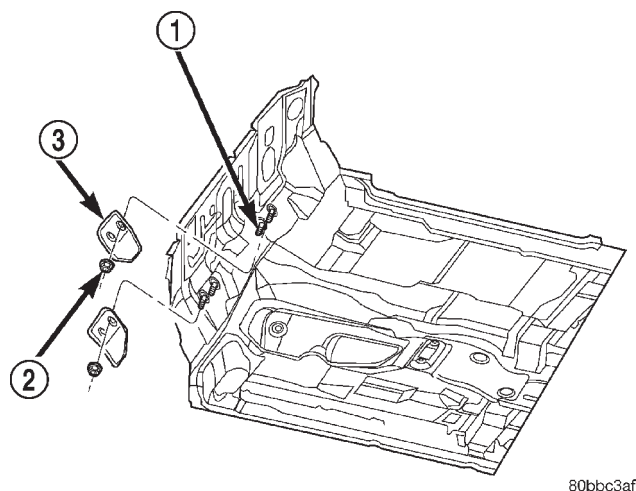


Fig. 19 Dash/Floor Pan Heat Shields

- 1 – SCREWS
2 – NUT AND WASHER
3 – FRONT FLOOR/DASH HEAT SHIELD

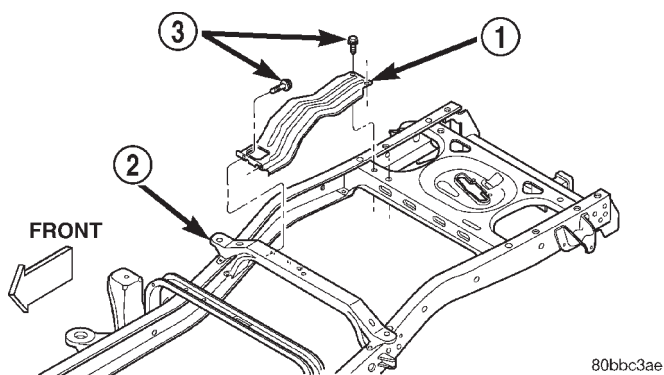


Fig. 20 Tailpipe Heat Shield

- 1 – TAILPIPE HEAT SHIELD
2 – FUEL TANK CROSSMEMBER
3 – SCREW AND WASHER

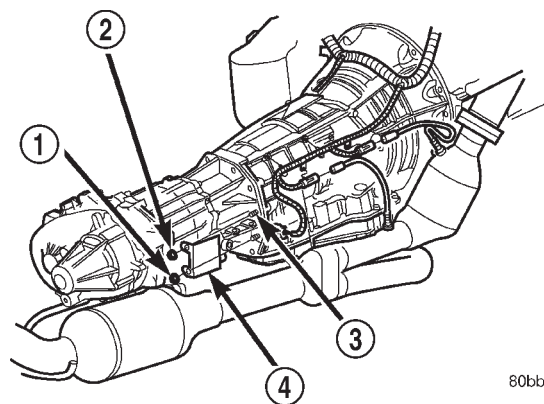
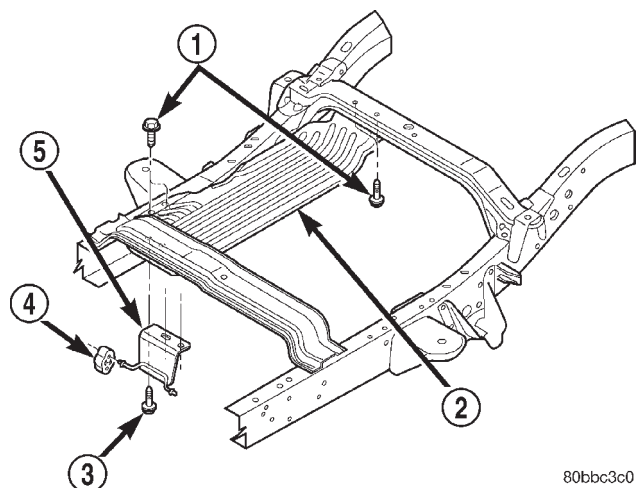


Fig. 21 Electrical Connector Heat Shield—45RFE Transmission

- 1 – BOLT RETAINER
2 – LOCKNUT
3 – STUDS
4 – HEAT SHIELD

REMOVAL AND INSTALLATION (Continued)



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Fig. 22 Muffler Heat Shield—4 Door Cab

- 1 - SCREW SELF TAPPING
- 2 - MUFFLER HEAT SHIELD
- 3 - SCREW SELF TAPPING
- 4 - ISOLATOR
- 5 - HANGER BRACKET

CLEANING AND INSPECTION

EXHAUST PIPE

CLEANING

Clean ends of pipes to assure mating of all parts.

INSPECTION

Discard rusted clamps, broken or worn supports and attaching parts. Replace a component with original equipment parts, or equivalent. This will assure proper alignment with other parts in the system and provide acceptable exhaust noise levels.

CATALYTIC CONVERTER

CLEANING

Clean ends of pipes and muffler to assure a good seal at mating surfaces.

INSPECTION

Look at the stainless steel body of the converter, inspect for bulging or other distortion that could be a result of overheating. If the converter has a heat shield attached make sure it is not bent or loose.

If you suspect internal damage to the catalyst, tapping the bottom of the catalyst with a rubber mallet may indicate a damaged core.

SPECIFICATIONS

TORQUE SPECIFICATIONS

DESCRIPTION	N·m	Ft. Lbs.	In. Lbs.
EGR Tube—Bolts	23	17	—
Exhaust Clamps—Nuts	41	30	—
Exhaust Pipe to Manifold—Nuts	26	19	—
Heat Shield—Nuts			
Floor Pan/Dash Panel	6	—	55
Floor Pan (All Except 4 Door Cab)	7	—	60
Floor Pan (4 Door Cab)	5	—	45
Electrical Connector (45RFE Trans.)	20	—	175
Heat Shield—Screws			
Floor Pan	22	16	—
Muffler	22	16	—
Tail Pipe	22	16	—
Center Bearing	22	16	—
Muffler Hanger—Screws	22	16	—
Tail Pipe Hanger—Screws	22	16	—